

## REMARKS

Applicant intends this response to be a complete response to the Examiner's **29 December 2011** Final Office Action. Applicant has labeled the paragraphs in his response to correspond to the paragraph labeling in the Office Action for the convenience of the Examiner.

### *Preliminary Statement*

In this response, Applicants have canceled all but claim 1, which has been amended. Applicants have added new claims 49-67. Applicants believe they originally paid for 21 total claims of which 6 were independent claims. The new claim count is 20 claims, of which only 4 are independent claims. Claimed claim 1 and new independent claims 54, 59 and 64 are all focused on cores made of metals, metal alloys and/or conductive polymers and a conductive outer nano-structure such as a non-shell or a nano-shell with nano-rods formed thereon. Applicants are not aware of any prior art that disclose nano-particles having a metallic or conductive polymer inner core and an other conductive nano-structure made of metals and/or metal alloys.

## DETAILED ACTION

The Examiner states and/or contends as follows:

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 11-12, and 31-48 are pending. Receipt of Applicant's response and amendment, filed October 12, 2011, is acknowledged. Therein, Applicant has amended claims 1, 33, 34, 36 and 37. Claims 11, 12, and 40-48 were previously withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention.

A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01. Applicants are reminded of the right to petition under 37 CFR 1.144, if Applicants disagree with the requirements for restriction filed on May 03, 2011.

Accordingly, claims 1 and 31-39 are currently under examination to which the following grounds of rejection are applicable.

Applicants acknowledge the Examiner statements.

### *Withdrawal of Claim Rejections*

The Examiner states and/or contends as follows:

Any previous rejections not reiterated herein have been withdrawn.

Applicants acknowledge the Examiner statements.

### *Response to Arguments*

The Examiner states and/or contends as follows:

Applicant's arguments filed October 12, 2011 have been fully considered but they are not persuasive.

Applicants acknowledge the Examiner statements.

### ***Claim Rejections - 35 USC § 102***

**Claims 1 and 31-39** remain rejected under 35 U.S.C. 102(a) and (e) as being anticipated by West et al. (WO 01105586) for the reasons set forth in the office action dated July 12, 2011.

The Examiner states and/or contends as follows:

Applicant asserts that West does not anticipate claims 1 and 31-39 because "West does not disclose compositions including a nanostructure deposited on a conductive core, where the nanostructure is also conductive." Reply at 13. More specifically, Applicant argues that West teaches a dial electric core of gold sulfide.

Applicant's argument is not found persuasive because gold sulfide is known to exhibit electrical conductivity in the range of 150-370 K. *See* Introduction to Ishikawa et al., "Structure and electrical properties of Au<sub>2</sub>S," Solid State Ionics 79 (1995) 60-66 ("Generally, whether a material is an ionic conductor which high conductivity or not is strongly related to its crystal structure. On this basis the sulfide Au<sub>2</sub>S could be a gold ion conductor.") As such, the gold sulfide cores taught by West comprise a conductive material as recited in claim 1. Incidentally, Applicant does not define the term "conductive material" in the specification which would render the teachings of West inapplicable to the present claims.

Without conceding in any way that any of claims 1 and new claims 49-67 as submitted are anticipated by West, Applicants address the Examiner's arguments below. Please note that claims 31-39 have been canceled and replaced by new more focused claims 49-67.

Again, West is a traditional nanoshell composition, where a metallic surface layer is formed on a dielectric core: "[g]old nanoshells are a preferred class of optically active nanoparticles that consist of a thin layer of gold surrounding a dielectric core, such as gold sulfide." West at page 8, lines 4-6 (emphasis added).

However, the Examiner is attempting to rely on Ishikawa et al to expressly contradict the express teaching of West that Au<sub>2</sub>S is **a dielectric**. Even if this is proper, when Applicants strongly and firmly disagree, Ishikawa et al article **does not** teach that gold sulfide is a conductor. In fact, Ishikawa et al expressly states: "However, it would be inappropriate to conclude from the measurements that Au<sub>2</sub>S is an electronic conductor . . ." Ishikawa et al at p. 65, paragraph continued from page 64. Ishikawa et al concludes that Au<sub>2</sub>S is at most a p-type semiconductor, but a conductor.

Moreover, Applicants find it very disconcerting that the Examiner would rely on an article

from a third party to refute an express teaching of a cited reference, especially in a section 102 rejection context. West is unambiguous, in teaching that Au<sub>2</sub>S is a dielectric. Applicants believe this attempt to refute an express teaching of a cited reference is very troubling and creates an untenable problem – no one can rely on the express teaching of a reference without relying on extrinsic evidence to teach its veracity. However, the United States Superior Court and the Federal Circuit has made it abundantly clear that extrinsic evidence cannot be used to interpret claim terms, unless the specification afford no guidance. Here the guidance is unequivocal, Au<sub>2</sub>S is a dielectric and the West compositions are, therefore, traditional nanoshells – conductive outer shell and a dielectric core.

Be that as it may, the present claims recite compositions comprising nano-particle cores comprising a metal, a metal alloy, a conductive polymer, or any combination thereof, and a nano-structure formed on an outer surface of the core, where the nano-structure comprises a metal, a metal alloy, or any combination thereof, where the metals or metal alloys are the same or different. West does not disclose nano particles comprising metal cores, metal alloy cores or conductive polymer cores.

Because West does not disclose nano particles comprising metal cores, metal alloy cores or conductive polymer cores, West cannot anticipate claims 1 and new claims 49-69.

Moreover, nothing in West disclosed, taught, suggested or would even lead an ordinary artisan to attempt to construct a composition including cores of metal, metal alloys and/or conductive polymers, and, therefore, West cannot render claims 1 and new claims 49-69.

## **NEW GROUNDS OF REJECTION**

### ***Claim Objections***

**Claim 35** stands objected to under 37 CFR 1.75 as being a substantial duplicate of claim 34.

The Examiner states and/or contends as follows:

When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Applicants have canceled claims 35 and have added new claims 49-69. The new claims include 3 new independent claims, each independent claim, including claim 1, has four dependent claims. As these claims have been carefully formulated, Applicants believe that no issue of claims of duplicate scope exists. Applicants, therefore, respectfully request withdrawal of this objection.

If it would be of assistance in resolving any issues in this application, the Examiner is kindly invited to contact applicant's attorney Robert W. Strozier at 713.977.7000

**The Commissioner is authorized to charge or credit Deposit Account 501518 for any additional fees or overpayments.**

Date: **28 March 2012**

Respectfully submitted,

**/Robert W. Strozier/**

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